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He continued to sail for some days, frequently landing, and at length arrived at a port, in the midst of which was seen an assemblage of houses built in the water, and defended with drawbridges. According to the relation of Vespucci, this port was 80 leagues south of that where the fleet subsequently arrived, and which was placed under the Tropic of Cancer. We are inclined to think that this port with its dwellings built in the water was no other than Vera Cruz, with the Isle of Sacrifices, and that which Erijalva called San Juan de Ulua, and of which Herrera gives an idea in no wise contradicting the impression that Vespucci had received in likening it to Venice. Thence he sailed to another port 80 leagues distant, well watered, abounding in fish and in birds, amongst which Vespucci mentions parroquets. This port was situated in a country which, according to the Italian text by Bandini and Canovai, is designated by the name of Lariab."

This Lariab, M. Varnhagen contends, is *Caria* or *Cariah*, disfigured by the transcriber, and is the port of Tampico. From this point, he says, Vespucci proceeded northward, "coasting along an extent estimated at 870 leagues. By a comparison of his narrative with other documents, it would appear that he well recognised the Mississippi, and that he pursued his course to Florida, the southern extremity of which peninsula he reached towards the end of April, 1498. From this point he must have passed through the Bahama channel, and continued to coast along the shores of the United States for more than thirty days, until after a navigation of thirteen months, consequently in the month of June, we find him not far from the port called by Vespucci the best in the world. This port could be nowhere except in the Gulf of St. Lawrence. After thirty-seven days it was decided to leave it; but the natives having a feud with certain others who inhabited an island a hundred leagues distant, the navigators considered themselves obliged to take part with the former in return for the treatment they had received. After a sail of seven days east-north-east they arrived at an island named Iti. They took some prisoners there, a part of whom were given over to the natives of the Gulf, who returned to their own country. Notwithstanding the resemblance of the names, we must be careful not to confound, as has been done, this isle of Iti, surrounded by other islands, inhabited or desert, with that of Haiti or Hispaniola. This expedition did not return to Cadiz until the month of October, 1498, after a voyage of eighteen months."

The author cites various proofs in favour of the authenticity of the first voyage of Vespucci; he afterwards directs his attention to overthrow objections made against it; and he quotes an important document in support of his positions, in the shape of a letter, dated in 1506, which was discovered by Ranke at Vienna, and published by Humboldt at p. 157 of the fifth volume of his *Examen Critique*. In addition, he affords us at the end of his pamphlet facsimiles of three notes attributed to Columbus, and bearing closely on the subject. The ultimate conclusion to which M. Varnhagen arrives is, that Vespucci undoubtedly accompanied Pinzon and Solis, and with a fleet of four ships, between 1497 and August, 1498, discovered and explored all the eastern coast of North America from Yucatan and the Gulf of Mexico to the most northern parts of the United States.

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14. *Notes on Ghilan*.\* By KEITH E. ABBOTT, Esq., H.M. Consul, Tehran.

GHILAN is a narrow strip of country situated on the south-western side of the Caspian, and enclosed by a lofty range of mountains, measuring from 6000

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\* See Paper by General Monteith, vol. iii. Journal R.G.S.—ED.

to 9000 feet above the sea's level. It is, I believe, about 32 agatches, or 144 miles, in length, including that portion of Tâlish which still belongs to Persia; in the broadest part it is called about 11 agatches, or 50 miles, in width; but in some of the parts I visited, the mountains, which occupy probably half the superficies of the province, approach to within 5 or 6 miles of the sea, and I believe still nearer in the northernmost portion of the country. The whole province, with the exception of the summits of the loftiest mountains and such parts as have been cleared away for cultivation, appears to be covered with wood. The immense quantity of rain which falls, the want of drainage, the dense forests and luxuriant vegetation, render the whole of the level country a morass. The climate, under such circumstances and in such a low latitude, must inevitably be unhealthy, and to strangers it is almost fatal during the hot months.

The natives of other provinces of Persia can seldom be tempted to expose themselves to it at that season; in winter and in spring and autumn fatal diseases are not so common, but the exceeding dampness and relaxing nature of the atmosphere render a sojourn there far from desirable from the frequency of colds and rheumatisms, and from the pains in the limbs and knees, which a prolonged residence entails. From the beginning of June to the end of September the flat country is reputed to be almost uninhabitable by a European or other stranger to the climate. The neighbouring mountains, however, offer a salubrious refuge during this period; but a person is there in complete seclusion, and cut off from intercourse with the neighbourhood by the distance and the badness of the roads. Few of the inhabitants of the flat country can take advantage of these fine retreats in the unhealthy season, because all hands are then occupied with the production of silk. The natives of the low country have almost all a sickly appearance; a healthy countenance was a rarity, of which, even in winter, I saw but few examples. The mountaineers are less sallow, but the fine, hardy, and healthy look of the Azerbaijanee of the opposite side of the mountains is seldom seen amongst them.

The language of Ghilan proper is the Ghilaik, a dialect of the Persian, which is spoken with great rapidity, and is less sonorous than the Persian of other parts. The Tâlish district, of which the Russians now possess the largest division, bounds Ghilan on the north. The inhabitants are represented as rude and brutal, much given to plunder and murder, but are a hardy and active race, especially those who live in the highlands. Their language is another dialect of the Persian, and I am informed that it has been ascertained to contain much more of the Pehlivi than either the Ghilaik or the language of Mazanderan. Of twenty substantives which I noted of the Ghilaik, only two varied from the modern Persian; in the same number of words, and of the same meaning, in the Tâlish language, there were only nine which corresponded with the Persian either exactly or approximately; the great difference in the former dialect appears to be in the verbs and in the pronunciation.

The principal places in Ghilan are Resht (its capital), Enzilli, Fornen, and Lahijan. I did not visit either of the latter two, but I believe that Lahijan is the largest, and not greatly inferior in size to Resht itself, which contains probably about 3000 houses and 15,000 to 20,000 inhabitants. Resht may be called a clean town; its bazaars are extensive, though not showy; the chief display in them consists of Russian hardware, glassware, and earthenware, and some English manufactures. The streets are paved with small stones; in wet weather, however, they are rendered very disagreeable to passengers, owing to the great and unequal projection of the roofs, from which the drippings descend in torrents, and which it is difficult to avoid. The jungle which covers Ghilan reaches to the very houses of Resht; these are generally of burnt brick and tiled, and are usually composed of a ground floor and upper story.

The caravanserais are numerous, but are not fit places for a European; in fact, there is only one set apart for Christians, into which I fancy a European would be admitted, and that is of a wretched description.

The houses in the country are much scattered, and seldom, as far as I saw, present the appearance of regular villages, and they are generally so much screened from view by the jungle that one is frequently not aware of their neighbourhood. They are usually neat and clean within, and instead of carpeting the inhabitants have beautiful mats, the reeds for which they obtain in abundance all over the flat country.

The population of Ghilan is at present small; I have heard it estimated as low as 100,000, but this appears to me to be an undervaluation. It is very difficult, however, to form an idea of its probable amount from the peculiar nature of the country. The dense forest which covers it, by concealing from the view of the traveller the habitations of the people, except such as are immediately on his line of route, precludes his forming any estimate from what comes under his observation, and there are no public records to which to refer. Previous to the dreadful plague of 1830 the province was well peopled, but full two-thirds of the population would appear to have been carried off by that calamity, from which the country has never recovered. A person with whom I was conversing on the subject told me that of 40 individuals of his own family and relations living here, 36 fell victims to the scourge; the remaining four had fled from the country.

Many thousand labourers from the Khalkhal districts of the western side of the Tâlish mountains find employment here during winter in the clearing and cultivation of land, hewing of wood, felling of timber, building, and other employments requiring bodily strength and great exertion, for which their weak and sickly constitution seems to incapacitate the natives of Ghilan. These labourers return to their homes in spring, for they cannot endure in summer the fatal climate of this low and swampy country.

The natives of Ghilan are notorious for their bigotry, ignorance, and prejudice; they have seldom seen Europeans, and those they are most acquainted with have generally been Russians. The care these prejudiced people take to avoid contact with a Christian as he passes them in the streets in rainy weather (where he is looked upon as particularly unclean) is perfectly ridiculous. In Azerbaijan this prejudice is now almost effaced, but the Ghilaiks have yet to learn a lesson which a visit from their Russian neighbours may one day teach them.

The food of the people is very simple and light. Rice and fish are the principal articles; both are the produce of the province, the latter being found in abundance in all the numerous streams which intersect the country, as well as in the lake or backwater of Enzilli, and in the sea. These fisheries are all rented, but much of the produce is doubtless taken without being paid for. Besides these the people have abundance of fine poultry, and horned cattle, like the Indian species; with a hump over the shoulder, but mutton is not commonly to be met with, except in autumn, I believe, when all classes are in the habit of consuming meat. The sheep are brought from the mountains, where they are pastured, and from the plains of Mogan. Wild fruit grows everywhere in abundance, but none is cultivated, which is, I believe, the reason of its being extremely unwholesome. I should except oranges, lemons, and limes, which were once extensively cultivated until a few years ago, when nearly all the trees were destroyed by an extraordinarily severe winter, and the fruit is now scarce and dear. The vines are allowed to climb up the trees of the forest, as in some parts of Turkey: the juice of the grape affords a delicious kind of treacle, called dowsawb, which is eaten with dry boiled rice. Neither fat nor butter is used in cookery, nor is any sort of bread eaten except in the towns, the people generally believing it to be injurious to

their health in this climate. Wheat and barley are cultivated only in trifling quantities, near the mountains; almost all that is required for consumption in the towns is brought from other provinces. The poorer classes give their horses rice in the husk, but those who can afford it procure barley, and rice-straw is used instead of barley-straw. Almost every provision is dear when compared with its value in other parts of Persia, except the few articles which are raised in the province.

The soil of Ghilan appears in some parts to be a rich vegetable stratum on one of sandstones and pebbles; it is probable, from this circumstance, and from marine shells being frequently found underground, that at some period the low country has been covered by the sea.

The flora of the province is exceedingly rich. Amongst the trees the oak and birch are in abundance, but the former is seldom of great girth. A species of very thorny acacia grows also all over the country. The pomegranate and other wild fruit-trees which abound must give to the forest a charming appearance at certain seasons.

I am informed that in the woods the tiger, panther, wild boar, jackal, and marten are found, and probably there are many other animals which I was not informed of. In the rivers is found the otter.

There is a great variety of birds in the woods. The pheasant is very plentiful, also the woodcock in its season; and the lake and its reedy islands, and the marshes, harbour myriads of wild-fowl of many kinds. In summer the swarms of gnats and flies render a residence in the country far from agreeable.

The complaints common in Ghilan are fevers and agues, rheumatisms, small-pox, leprosy, and other cutaneous diseases. The latter are said to have been much more common a few years since than at present, a circumstance which I have not heard accounted for. The dreadful plague which visited the province some years ago may perhaps have purged the country of many of these disorders by carrying off those who were afflicted with them; but this is a mere conjecture.

The roads throughout Ghilan are perhaps the worst it is possible to conceive; those around Resht have been left in the most extraordinary state of neglect and disorganization purposely and avowedly with the object of keeping off invasion. It was once suggested to one of the governors by the agent of a neighbouring power that great advantage would result from the repair of the roads and cleansing of the bed of a small stream which flows near Resht. Both these were undertaken, but so great was the jealousy of the people, that the governor's conduct was immediately represented at court, and he was reprimanded. Since then the roads and river have again become as impracticable as before, and the former can scarce be termed roads, as it is with the utmost difficulty that any beast of burthen can pass them. They are, however, the best defences which such a country can possess whilst in the hands of a semi-barbarous people, and they on one occasion many years since proved the safety of the capital of Ghilan. A Russian force attempted to reach that town by the Peeree Bazaar road. It would appear that with infinite difficulty they succeeded in getting half-way between Peeree Bazaar and Resht, a distance of five or six miles, dragging along some artillery; but here they encountered a brisk fire from irregular troops sent against them. Entangled in the thickets, and retarded by the wretchedness of the roads, the invaders were deliberately picked off by the ambush into which they had fallen; and they are said to have lost about 500 men, were forced to retreat, and have never since repeated the attempt.

The Caspian appears to be very shallow on the south-western side for many furlongs from the shore, and I observed several single-masted vessels riding at anchor securely at about 10 or 15 miles out at sea. The Russian Government

sends a vessel every year to survey the coasts of the Caspian, as the soundings are continually altering; their sailors are made to serve alternately in this sea and in the Baltic.

The Caspian is considered a stormy sea; and there is no doubt that a great deal of the rain and snow with which Ghilan is at certain seasons deluged comes from seawards; but to such vessels as navigate the Caspian almost any boisterous weather must be perilous. I understand that some Russian officers, who a short time since were employed to ascertain the relative heights of the Caspian and Black Seas, found that the former was 96 French feet lower than the level of the latter. The observations which I took of the barometer at the Caspian did not give this result, but the instrument had got out of order on the journey, and, though I repaired it, there was not much dependence to be placed on the observations made with it. The waters of this sea, which I tasted at various parts of the coast, appeared to contain very little salt. This may have arisen in part from the vicinity of many small streams, but I believe that it is not in any part very briny.

Enzilli contains 300 to 400 houses and shops, and is the only seaport on the coast of Ghilan. It is situated on the extreme point of a singularly narrow and long strip of sand, which, with one of similar shape advancing from the east and nearly joining it, almost separates the lake or backwater of Enzilli from the Caspian, leaving a passage between them of about 200 yards wide. The western tongue on which Enzilli stands is about 15 miles in length, of various widths, but in some parts not above 150 yards across: it is covered with swamp and jungle. The anchorage is within this tongue of land, and between it and a long island in the lake, the intermediate channel being deep enough to admit of ships of 250 tons burden, when partly laden, lying close to the shore, and people can step from it on board. There is ample accommodation for all the vessels which visit this port, but the larger class are obliged to discharge part of their cargoes into boats at sea before they can cross the bar at the entrance of the lake. Many sandbanks reaching almost to the water's surface very much obstruct the passage to the anchorage. There appears to be very little depth of water in the lake, and probably not in any part above 6 fathoms. The surface is not often much ruffled by storms, but the boats of Enzilli, being of slight build and small beam, do not venture on it in blowing weather. The extent of the lake is called 6 agatches by 4, or 27 by 18 miles, but I should think it was more. Its saltness is scarce perceptible, and indeed the boatmen commonly drink it. It swarms with fish of various kinds, particularly the *māhee sefeed* (a species of carp, I believe).

Enzilli, the seaport of Ghilan, through which a considerable traffic is carried on, possesses not a single caravanserai or other fit place of accommodation either for goods or passengers. A stranger arriving there without friends or recommendations to people would be exceedingly ill off, particularly in winter, where he might be detained by stress of weather (if on his way to Resht); for several days he would scarce find a shelter for himself, and probably none for his horses.

I could not obtain an exact account of the vessels which frequent the port of Enzilli. Of the largest, measuring from 100 to 250 or 300 tons, there are said to be about 10 or 12 annually from Astrakan. From Bâku, Salian, and Lankaran, the greater part are large boats of various rigs; and I was told that from 50 to 60 of these visit Enzilli during the year. I should have thought, however, the number would have been greater; for when I was at Enzilli there were between 20 and 30 vessels of all descriptions in the harbour; and many may be supposed to make more than one trip in the year to this port, though there is no account kept of them, and the people seemed to have no exact notion of their real number. The greater part come from Bâku, laden with

naphtha, of which there is an extensive consumption in the countries bordering on the Caspian, the lower classes commonly burning it in their lamps. It is extremely cheap, a maun shakee, or 13 lbs., being worth at Enzilli 12 to 14 shahees, or about 8*d.* sterling.

The Russian mercantile marine in the Caspian is said to amount to about 1000 vessels of all descriptions: the limited trade of this sea not requiring so many, freights are exceedingly low.

The village of Peeree Bazaar, the shipping-place of all goods passing between Resht and Enzilli, is situated on a small river at about 3 miles from the lake. It possesses neither stores for goods nor accommodation for travellers; the only shelter to be obtained for the former is an open shed, which hardly screens them from the weather. Here they have to await the chance arrival of boats from Enzilli, which come generally only when they have obtained a lading. The road from Peeree Bazaar to Resht lies through the jungle, and, if road it may be called, can scarce be exceeded in badness by anything with such a name. Though the actual distance is perhaps not more than 5 or 6 miles, such is the extreme difficulty of the road, that it requires 3 to 4 hours to perform it with a horse lightly burthened. The river of Mân-gaudeh, a small stream about 12 yards wide, which passes near Resht, and falls into the lake, offers an easy channel of communication with Enzilli; but the same reasons which induce the government to neglect the repairs of the Peeree Bazaar road, render it also their policy to impede the free navigation of this little stream, which, from want of attention, has its course blocked up in various parts by fallen trees and mudbanks. In summer, when the water is low, on account of these obstructions boats cannot ascend the stream, I believe; and in winter the current is so strong, that it takes a day to ascend from the lake to near Resht, a distance of about 10 miles.

In conclusion, I would observe that Ghilan, though in wretched hands and kept in the most shameful state of neglect, is, in proportion to its extent, the richest province of Persia. Its inhabitants appear to possess a great deal of wealth. Among the highest classes there are large fortunes, and traders with 2000 to 5000 tomauns capital are very numerous. The lowest class, though not supposed generally to possess more in coin than they require to purchase necessities with, appear to live comfortably on half their crops of rice (the other half being the property of the landlord), their poultry, and the produce of their cows, together with the wild fruits which grow everywhere, and the fish of the numerous streams, the lake, and sea. The government derives a yearly revenue of 200,000 tomauns, or about 100,000*l.* sterling, from the province, including the customs and rent of the fisheries, which together amount to 45,000 tomauns, or about 22,500*l.*; but probably half as much again is paid in voluntary contributions by the principal people of the province to the court for objects of self-interest, and there are many pensioners in the province who have grants of lands and villages made them by government in return for services.

#### 15. *Remarks on the Undulatory Motion of the Sea and its Currents.\** By Commendatore ALESSANDRO CIALDI.

FIVE principal propositions form the subject of the present notice:—

1st. The translation of the liquid mass in the undulating motion of the waves on the open sea when the wind is violent.

2nd. The absence of any notable translation in the said undulating mass when the velocity of the wind is not more than 7 or 8 mètres per second.†

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\* Cenni sul Moto ondoso del Mare, e sulle Correnti di Esso. 4°. Roma, 1856.

† Mètre = 39·37 inches.